CLAIMS

What is claimed is:

1. A method of making a golf ball comprising:

a. cooling a golf ball subassembly such that the golf ball subassembly undergoes a volumetric reduction; and

b. applying a cover layer over the volumetrically reduced golf ball subassembly.

2. The method of claim 1, further including the step of forming the golf ball subassembly before the step of cooling, wherein forming the golf ball subassembly includes forming a core.

3. The method of claims 2, wherein the step of forming the core includes compression molding a polybutadiene base material.

4. The method of claim 2, wherein the step of forming the golf ball subassembly further includes forming at least one intermediate layer on the core.

5. The method of claim 4, wherein the step of forming each intermediate layer includes compression molding or injection molding a thermoplastic or thermoset material over the core.

6. The method of claim 1, wherein the step of cooling includes decreasing the temperature of the golf ball subassembly to a cooling temperature of less than about 75°F.

7. The method of claim 1, wherein the step of cooling includes decreasing the temperature of the golf ball subassembly to a cooling temperature of less than about 50°F.

8. The method of claim 6, wherein the cooling temperature is between about -10°F and about 40°F.

9. The method of claim 7, wherein the step of cooling further includes maintaining the golf ball subassembly at the cooling temperature for greater than 20 minutes before the step of applying the cover layer.

10. The method of claim 7, wherein the step of cooling further includes maintaining the golf ball subassembly at the cooling temperature for greater than 1 hour before the step of applying the cover layer.

11. The method of claim 1, wherein the volumetric reduction is at least about 1%.

12. The method of claim 1, wherein the step of applying the cover layer is a casting process.

13. The method of claim 1, wherein the step of applying the cover layer is a reaction injection molding process.

14. The method of claim 1, wherein the step of applying the cover layer further includes:

providing a first mold half and a second mold half, the first and second mold halves have cavities therein;

heating the mold halves to a predetermined temperature;

adding a cover material to the first mold half cavity;

allowing the cover material to gel;

inserting a golf ball subassembly into the first mold half cavity;

adding the cover material to the second mold half cavity;

mating the second mold half with the first mold half so that the cover material and the golf ball subassembly are contained within the cavities in the mold halves.

15. The method of claim 14, further including the step of curing the cover material to form the cover layer after the step of mating the second mold half.

16. The method of claim 15, wherein the step of curing the cover material further includes:

i. maintaining the mold halves at a first temperature for a first predetermined time;

ii. heating the mold halves to a second temperature greater than the first predetermined temperature for a second predetermined time; and

iii. maintaining the mold halves at a third temperature for a third predetermined time.

17. A method of curing a golf ball cover comprising the steps of:

a. providing a covered golf ball subassembly in two mold halves;

b. maintaining the mold halves at a first temperature for a first predetermined time;

c. heating the mold halves to a second temperature greater than the first predetermined temperature for a second predetermined time; and

d. maintaining the mold halves at a third temperature for a third predetermined time.

18. The method of claim 17, wherein the first temperature has a value sufficient to allow the cover to initially cure.

19. The method of claim 17, wherein the first temperature is between about 70°F and about 110°F.

20. The method of claim 19, wherein the first predetermined time is between about 2 minutes and about 15 minutes.

21. The method of claim 17, wherein the first temperature is between about 70°F and about 90°F and the first predetermined time is between about 5 minutes and about 10 minutes.

22. The method of claim 17, wherein the second temperature is greater than about 120°F.

23. The method of claim 17, wherein the second temperature is between about 130°F and about 170°F.

24. The method of claim 17, wherein the second predetermined time is between about 2 minutes and about 10 minutes.

25. The method of claim 21, wherein the second temperature is between about 130°F and about 140°F and the second predetermined time is between about 3 minutes and about 7 minutes.

26. The method of claim 17, wherein the third temperature is less than the second temperature.

27. The method of claim 17, wherein the third temperature is between about 70°F and about 110°F.

28. The method of claim 17, wherein the third predetermined time is between about 5 minutes and about 15 minutes.

29. The method of claim 25, wherein the third temperature is between about 70°F and about 90°F and the third predetermined time is between about 10 and about 15 minutes.

30. The method of claim 17, wherein the second predetermined time is less than the first predetermined time and the third predetermined time.

31. A method of making a golf ball comprising:

a. cooling a golf ball subassembly such that the golf ball subassembly undergoes a volumetric reduction;

b. applying a cover layer in mold halves over the volumetrically reduced golf ball subassembly to form a covered golf ball;

c. curing the layer including the steps of

i. maintaining the mold halves at a first temperature for a first predetermined time;

ii. heating the mold halves to a second temperature greater than the first predetermined temperature for a second predetermined time; and

iii. maintaining the mold halves at a third temperature for a third predetermined time.

32. The method of claim 31, wherein the step of maintaining the mold halves at a first temperature includes placing the mold halves in a first insulating chamber.

33. The method of claim 31, wherein the step of heating the mold halves to a second temperature includes placing the mold halves in a curing oven.

34. The method of claim 31, wherein the step of maintaining the mold halves at a third temperature includes placing the mold halves in a second insulating chamber.

35. The method of claim 31, further including the step of cooling the mold halves to a fourth temperature lower than the third temperature.

36. The method of claim 35, wherein the fourth temperature is between about 60°F and about 80°F.